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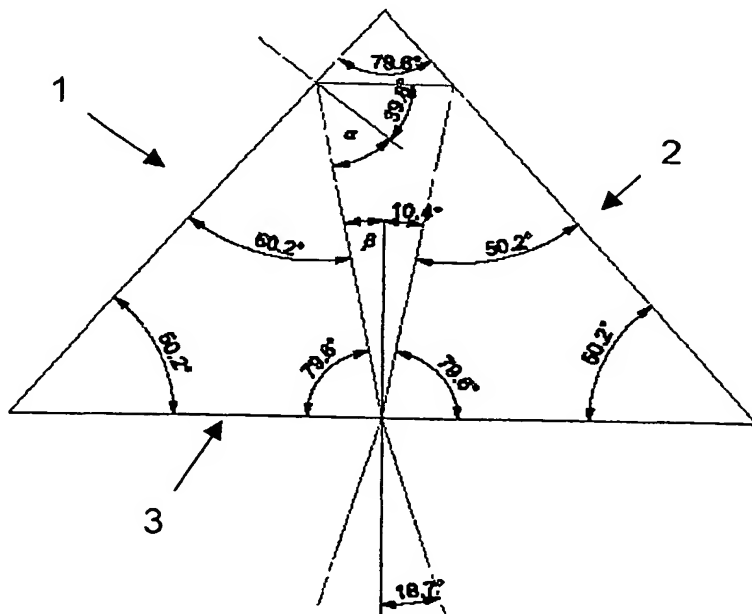
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(54) Title: **OPTICAL AMPLIFICATION IN MINIATURIZED POLYMER CAVITY RESONATORS**



(57) Abstract: An optical device for providing optical amplification comprises a substrate, a radiation sensitive polymer structure provided on the substrate in a shape defined by a number of sidewalls,  $n$ , and being doped with an optically active medium, wherein the sidewalls of the structure form a cavity resonator so that an electromagnetic wave upon pumping of the device is emitted laterally. The radiation sensitive polymer may be a photo-definable polymer, such as SU-8. The optical device for providing optical amplification may also comprise a substrate and a photo-definable polymer structure provided and being doped with an optically active medium. The device may have a shape and/or at least one material provided at least along a part of at least one sidewall of the structure so that a beam propagating in the structure will experience total internal reflection when incident on no more than  $n-1$  sidewalls.

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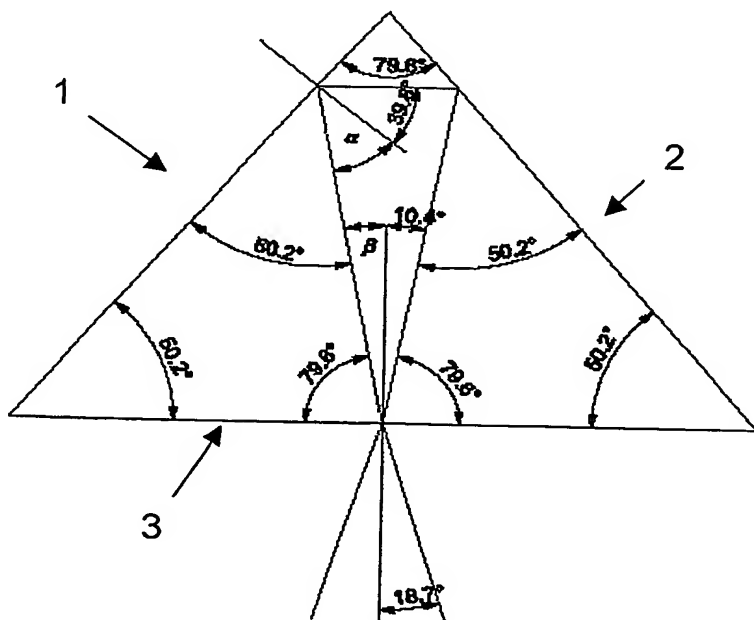
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